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L1 684 S OVERLAY# AND (GLASS FIBER#### OR GLASS FIBR####)
L2 133 S OVERLAY# (P) (GLASS FIBER#### OR GLASS FIBR####)
L3 68506 S 156/CLAS
L4 29 S L2 AND L3

=> d cit 7 13 17 19 24

7. 5,264,062, Nov. 23, 1993, Production method for composite molded article; Hisayoshi Ohsumi, et al., **156/228, 242, 245, 306.6, 311, 313**; 264/328.1; 428/308.8, 464, 537.1, 537.5
[IMAGE AVAILABLE]

13. 4,746,560, May 24, 1988, Decorative composite panel; Herbert A. Goeden, 428/151; **156/60, 307.1**; 428/203, 210, 211, 212, 218, 430, 480; 442/391 [IMAGE AVAILABLE]

17. 4,263,373, Apr. 21, 1981, Method of making an ultra thin glue adherable decorative laminate; Harold O. McCaskey, Jr., et al., 428/531; **156/90, 277, 278, 307.5, 307.7, 315, 335**; 427/209, 411; 428/535 [IMAGE AVAILABLE]

19. 4,153,490, May 8, 1979, Method of manufacturing coated composite articles from a non-flowable mixture, and articles obtained thereby; Jakob F. Werz, et al., **156/85, 219, 309.6, 313**; 264/112, 119, 257, 260 [IMAGE AVAILABLE]

24. 4,006,048, Feb. 1, 1977, Reverse printed high-pressure laminates; Daniel L. Cannady, Jr., et al., **156/90, 219, 220, 277, 288, 307.5, 331.3, 335**; 428/203, 211, 531; 528/252, 256, 258, 265 [IMAGE AVAILABLE]

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[IMAGE AVAILABLE]

US PAT NO: 5,264,062 [IMAGE AVAILABLE] L4: 7 of 29
US-CL-CURRENT: **156/228, 242, 245, 306.6, 311, 313**; 264/328.1; 428/308.8, 464, 537.1, 537.5

DETDESC:

DETD(6)

A fibrous material 6 may be used in place of the porous material 5. A non-woven fabric, a paper, or a **glass-fiber** mat may be used as the fibrous material 6. The thickness of the fibrous material 6 must be in a range where the composite wood **overlay** surface material 1 can be appropriately shaped; however, the thickness of the porous material 5 is

not specifically limited. It. . .

13. 4,746,560, May 24, 1988, Decorative composite panel; Herbert A. Goeden, 428/151; **156/60, 307.1**; 428/203, 210, 211, 212, 218, 430, 480; 442/391 [IMAGE AVAILABLE]

US PAT NO: 4,746,560 [IMAGE AVAILABLE] L4: 13 of 29
US-CL-CURRENT: 428/151; **156/60, 307.1**; 428/203, 210, 211, 212, 218, 430, 480; 442/391

SUMMARY:

BSUM(9)

More . . . core have a specific fiber density, i.e., specific number of fibers per unit volume, and are formed from generally thick **glass fibers**. As compared to other glass mats included in the composite, these core mats can best be described as thick fiber/low. . . the base portion provides the decorative image, such as an image of hard wood planks, to the composite. A transparent **overlay** is provided over the printed sheet to protect the graphic sheet. The **overlay** preferably includes a thin fiber/high density glass veil to reinforce the **overlay**. An unsaturated polyester impregnates the print sheet and glass veil and forms the wear coat **overlay**. The overall thickness of the panel is approximately 1/2".

SUMMARY:

BSUM(18)

Broadly . . . resin to form a laminate composite. The panel composite can best be described as comprised of two regions, an upper **overlay**/graphic region and a lower, relatively thick, reinforced base region. The upper region is comprised of an outer wear coat or **overlay** and a printed graphic sheet, conventionally known as a "prepreg", which conveys a decorative effect, such as of wood grain, to the panel. This region is formed by impregnating the graphic print sheet with a thermosetting polyester resin. The **overlay** or wear coat is a layer of thin, preferably clear thermosetting polyester resin having a thickness of approximately 10-20 mils. In the preferred embodiment, a thin veil of relatively thin **glass fibers** having a high fiber density is embedded in the wear coat. The veil is approximately 20 mils thick and imparts. . . be described later, assists in balancing the internal stresses in the panel composite during forming. The overall thickness of the **overlay**/graphic region is approximately 10-20 mils wherein the impregnated print is approximately 3-4 mils thick and the **overlay** with glass veil is approximately 10-15 mils thick. The resin used in this upper region of the panel composite is. . .

17. 4,263,373, Apr. 21, 1981, Method of making an ultra thin glue adherable decorative laminate; Harold O. McCaskey, Jr., et al., 428/531; **156/90, 277, 278, 307.5, 307.7, 315, 335**; 427/209, 411; 428/535 [IMAGE AVAILABLE]

US PAT NO: 4,263,373 [IMAGE AVAILABLE] L4: 17 of 29
US-CL-CURRENT: 428/531; **156/90, 277, 278, 307.5, 307.7, 315, 335**; 427/209, 411; 428/535

SUMMARY:

BSUM(2)

Thin . . . in U.S. Pat. No. 3,756,901, taught 13 mil to 24 mil thick decorative laminates, made from one sheet each of **glass fiber overlay** and kraft paper support, the kraft paper having a printed design, and each sheet being impregnated with at least 55. . .

19. 4,153,490, May 8, 1979, Method of manufacturing coated composite articles from a non-flowable mixture, and articles obtained thereby; Jakob F. Werz, et al., 156/85, 219, 309.6, 313; 264/112, 119, 257, 260 [IMAGE AVAILABLE]

US PAT NO: 4,153,490 [IMAGE AVAILABLE] L4: 19 of 29
US-CL-CURRENT: 156/85, 219, 309.6, 313; 264/112, 119,
257, 260

SUMMARY:

BSUM(6)

The . . . which there can be applied a transparent protective layer. As the protective layer, there is usually used a clear so-called **overlay** paper, consisting of a non-filled alpha-cellulose paper or a **glass fiber** fleece, which is soaked with a thermosetting plastic material, mostly on the melamine basis. The transparent protective layer can also. . .

24. 4,006,048, Feb. 1, 1977, Reverse printed high-pressure laminates; Daniel L. Cannady, Jr., et al., 156/90, 219, 220, 277, 288, 307.5, 331.3, 335; 428/203, 211, 531; 528/252, 256, 258, 265 [IMAGE AVAILABLE]

US PAT NO: 4,006,048 [IMAGE AVAILABLE] L4: 24 of 29
US-CL-CURRENT: 156/90, 219, 220, 277, 288, 307.5,
331.3, 335; 428/203, 211, 531; 528/252, 256,
258, 265

SUMMARY:

BSUM(7)

Arledter, . . . Pat. No. 2,816,851, attempted to solve pattern sharpness and phenolic resin bleeding problems, by printing the reverse side of an **overlay** sheet with a decorative design, such as a wood grain pattern. There, the **overlay** sheet had a special construction, and was impregnated with a melamine-formaldehyde resin. The **overlay** was used in conjunction with an unprinted, print sheet barrier paper, loaded with opacifying fillers, and impregnated with melamine-formaldehyde resin. The **overlay** sheet contained 50 weight percent pure grade cellulose fibers and 50 weight percent of a combination of rayon and **glass fibers**. This construction still retained the expensive filled barrier, required an expensive combination **overlay**, and did not solve inventory problems.

DETDESC:

DETD(8)

The **overlay** sheet will consist essentially of high grade regenerated or alpha cellulose fibers, with only minimal amounts of kraft paper extending fibers. It will not contain fillers and will not contain any expensive nylon, rayon or **glass fibers**. This sheet will range in thickness from about 0.001 to 0.015 inch, and preferably between about 0.001 to 0.010 inch.. . .